

Former Worker Pantex Needs Assessment Phase I

Summary and Recommendation

Based upon the availability of information to access former workers, and given the knowledge regarding past exposures to hazardous agents, it is recommended that a Phase II examination program be established for former Pantex workers. This will be in keeping with other DOE mandates and programs, and will assist with the current DOE compensation program.

I. Introduction and Background

The Department of Energy has established a program to meet the medical oversight needs of former workers who worked at a variety of Department of Energy facilities in connection with the nuclear programs of the United States. It has been recognized that these workers might have been exposed to potentially hazardous materials, and that they were deserving of medical oversight and assistance with potential work induced problems. To this end, numerous programs addressing health need of some of the former workers at a wide variety of sites have been set up, and this is an assessment of the reasonableness for a similar program to be established for the former workers at the Pantex site near Amarillo, Texas.

Pantex is a former ammunition depot now for many decades operating as a nuclear weapons site. It continues to operate, but over the years thousands of individual have come, and gone, after spending time at the facility. For the purposes of this review, the definition of “worker” includes all individuals that had, as part of their job duties, activities that took them on to the Pantex site.

The Pantex facility is located near Amarillo, Texas, taking up some 10,000 acres with numerous buildings and an extensive array of work sites. Individuals who would have worked at this site include not only those employed over the years by the contract operator of the site, but others who had reason to be on the site. These others would include sub-contractors for specific jobs such as construction, individuals such as telephone installers and repairers who might be assigned to the Pantex facility for extended periods, individuals who serviced vending machines, laundries, and other aspects of the life on a large worksite, but who were not directly employed by the site, and others who might have had regular access to facilities. The vast majority of those individuals who might be considered suitable for a former worker’s medical surveillance program would be former contractor employees or individuals who worked directly for the Department of Energy, but there would be others that need to be included initially in the broad definition of former worker.

The assessment of this site was greatly enhanced by the opportunity the Principal Investigator has had to conduct other research activities utilizing this facility, both among active and former workers. Dr. Frank has been involved with research activities, specifically looking at the issue of lung cancer at the Pantex site, for approximately four years. These activities have contributed to his education and appreciation of the site, and has allowed him to develop a knowledge base about activities at the site that aided with the needed risk assessments and exposure assessments that are part of this document.

This prior activity has greatly assisted with the needs assessment phase of a former workers project, in that Dr. Frank was known to staff at Pantex, interacted on a regular basis for several years with current and former workers, and has independently developed knowledge about potential health hazards at the site. Nevertheless, a full assessment of potentially hazardous exposures was necessary, and carried out, to make the recommendations contained in this specific needs assessment. What this has allowed, however, is an appreciation of some actual risks that, in reality, exist, not just a theoretical construct of potential risk. For example, certain malignancies, such as evidence of mesotheliomas, actually point to a prior asbestos hazard at this facility.

Dr. Frank has also had the opportunity of working in the Amarillo environment with local healthcare personnel, and has established potentially useful contacts with regard to local staffing, referral sources, and through other links within Texas, potential utilization of resources that ultimately will benefit a former worker's medical screening program. This would include access to a mobile medical unit, fully equipped with laboratory facilities including X-ray, which can be utilized in setting up surveillance exams at multiple sites over time.

II. Assessment Teams

To carry out the full needs assessment with regard to establishing a need for a former workers project at Pantex, various assessment teams were put together to evaluate different areas and the information that would be available. The overall responsibility for administrative issues and their role assessment lay with the P.I., and there were additional inputs from other groups of colleagues. There was an exposure assessment team headed by Barbara Pinson, M.D., M.S., assisted by a certified industrial hygienist, Torey Nalbome, and a worker assessment team head up by Sheldon Samuels, formerly of the Industrial Union Department of the AFL-CIO. In addition there was active involvement by Pantex contractor staff.

The overall assessment and review of administrative issues was carried out by Dr. Frank with site visits to the Pantex facility. He reviewed with the local Pantex contractor's staff a variety of issues. These included: (1) accesses to exposure data, chemical as well as physical, (2) previous medical assessments made of workers, (3) availability of rosters of workers, (4) availability of information regarding specific work sites at the large Pantex facility, and (5) security related issues since these were still active facilities in daily use. It was determined that there were excellent data bases for several aspects of this series of assessments. There was a complete listing of chemicals to which workers had been exposed over the years, and further details of this assessment are noted below. There was clearly ongoing assessment of radiation exposure, with some problems with data over the years, but nevertheless information available regarding exposure assessments on an individual worker basis. There were rosters of not only current workers, but many former workers, including addresses and vital status such as dates of death. What was not readily available were data sources for workers that may not have been hired directly by the contractor, such as sub-contractors, or workers in other trades that would come on site on a regular basis. Nevertheless, it will be possible to identify such individuals, as will be discussed further below. Security issues were also addressed and found to be an area of concern that could be dealt with without compromising security, but allowing for identification of individuals at specific work sites where there was a higher risk of exposures that might occur at other work sites. This was accomplished by use of a code system to identify work areas, without compromising any security concerns.

Exposure assessments, which will be addressed further below, were made available to the team including the industrial hygiene member of the activity. Also made available to him were coded sites at which materials were used, so that a generalized matrix could be constructed which would allow for identification of former workers at highest risk of potential disease development because of prior exposures.

Worker assessment was done through a variety of activities, and also drew upon previous work done as part of the lung cancer research study noted above.

Also important, and impressive in terms of their cooperation, was the willingness of the contractor Pantex staff in place at the present time to work with the investigator in addressing any and all questions and supplying information of any and all types that were asked about in a pleasant, timely and appropriate fashion. At various meetings that were held at the facility large teams representing all areas that needed to be assessed were pulled together and presentations were made with time for individual interactions regarding all of the assessments that were needed. As will be noted below, staff from Pantex, including senior management, are actively involved in community wide efforts to address the needs of workers, not only at Pantex, but beyond into the wider Amarillo area.

III. **Documentation Reviewed**

At the various presentations made to the assessment staff large amounts of materials were shared and all areas of concern were addressed. Specifically there were presentations covering industrial hygiene records, medical records, radiation records, personnel records and security concerns. Reviewed with the assessment team were details of exposures, previous inspections, biological and other worksite monitoring, and a sharing of forms and questionnaires used for worker assessments in the past at Pantex. It is clear that access to these materials and to past documentation will be forthcoming even beyond what has been made available at present. CDs with information were made available to all members of the assessment teams.

Union officials representing the current and former workers at Pantex also offered their assistance in an additional gaining access to materials, files, and information regarding former workers and would be a source of information about processes at the worksites, always keeping security considerations in mind.

IV. **Exposure Assessment**

The exposure assessment team, based at the University of Texas Health Center at Tyler(UTHCT) was headed by Barbara Pinson, M.D., M.S. and included Torey Nalbome, C.I.H., M.S. as well the Project Coordinator, Karen Gilmore, M.P.H. This group, along with Dr. Frank, participated extensively in the exposure assessment aspects of the potential former Pantex worker medical surveillance exams to be set up in Phase II. There developed among this team a clear understanding of the potentially hazardous products used at Pantex.

Working as a team, the UTHCT group evaluated several activities. Their goal was to establish a good working relationship with the needed sources of information at Pantex, secure access to existing worksite data, review this data to determine potential exposures, construct a risk matrix, identify the most significant worker exposure risks, and consult with the principal investigator regarding the development of Phase II. All of these aspects have been met.

Working as a team, the group from UTHCT established excellent working relationships with staff at Pantex, specifically with the BWXT Worker Advocacy Office, DOE security personnel, and with staff from safety, industrial hygiene, and other aspects of the Pantex contractor facility. Staff at Pantex provided a CD which contained a list of all chemical substances present at the Pantex facility by year of presence. These lists paralleled those required for material safety data sheet inventory and are similar to the required list generated for either community right to know regulations or those established for toxic release inventory reporting. These lists were transcribed onto a spreadsheet format to compile all chemicals into a centralized document. In order to accurately identify and prioritize the most hazardous chemicals the UTHCT team engaged in a tedious and time consuming process of cross referencing trade and chemical names, identifying individual ingredients, made a hazard rating for each ingredient, and then assigned an overall hazard rating. The spreadsheets document was migrated into a relational database, that database now containing over 2,500 chemical products and components. This database can be queried by chemical component, and a single chemical product can be searched and all components containing that product would be identified. Additionally, the database construction allows for report compilation for a variety of search criteria. For example, one can do a search for the top ten chemicals with a significant value on the fire or health hazard ranking. The ranking of chemical by potential risk would be one of the primary criteria used for identifying exposure and risk through the developed matrix, since it can be combined with data by worksite, and eventually individual worker data can be created with parameters of worksite and chemical exposure.

In conjunction with these activities, a list of job titles, employees on each job by year of hire and termination was requested. A report of individuals by employee number, job title, hire date and date of termination for the former workers were provided by the staff at Pantex. This type of information can be used in conjunction with chemical hazard index to review exposures by departments at the Pantex facility, and eventually lead, as noted above, to individual worker ranking for notification and offering of a Phase II exam.

To test the feasibility of this database design, and to work with other Pantex databases, additional request were made for a facility database dictionary to assure compatibility and consistency within the project database. This was cleared through the security staff at Pantex, and the UTHCT team developed an information security plan for data related to the program and submitted this for approval. Subsequently the security plan was approved, dictionary databases were merged and it will be possible to look at data either by area, by chemical, or employee. This Industrial Hygiene Management System (IHMS) data will include a ranking system developed in conjunction with industrial hygiene and environmental services departments at the Pantex facility. This hazard ranking will incorporate the decision matrix for identifying chemicals of interest, and lead to the identification of those individuals most appropriate for examination.

It is clear that there were some significantly hazardous materials used at this facility. A brief listing of these would include such carcinogens as asbestos, MOCA (4, 4'-Methylenbis (2-chloroaniline)), radiation producing materials, and a variety of solvents. Another chemical of special interest to the DOE has been beryllium. It is some interest that only two products were in the database listing as containing beryllium, a standard for evaluation, and beryllium nitrate tetrahydrate. Although these were the only ones identified in the database, it is independently known that machining beryllium containing materials was done at this facility. It is also of some interest that initial discussions with staff at Pantex would have led one to believe that beryllium was not a significant potential health hazard at this facility, but this was proven to be incorrect. It

has come to the attention of the principle investigator that significant numbers of individuals have been identified as positive with regard to response to beryllium by the lymphocyte transformation assay, and this has included such staff as warehouse clerks who never directly handled any beryllium containing material, but worked in areas where previous exposure to beryllium had taken place and where sufficient material was still present in dust to cause disease, even years later.

Based upon the knowledge obtained as to the listing of materials, it will be essential to construct a medical surveillance protocol that will serve the need to screen individuals for potential carcinogen exposure hazards. Because of the knowledge that this facility has had individuals who have developed mesothelioma and lung cancer among non-smokers, it is clear that there are sufficient exposures that have existed to asbestos, and a variety of other lung cancer producing carcinogens to have led to these findings, and that would have put other workers at risk. Special attention will be given, in the selection of workers to be examined, to those where one can document higher levels of exposures to carcinogens. There may well be a sufficient number of former workers exposed to significant amounts of carcinogenic substance in the past that would relegate other types of exposure to a lower rank in terms of who should be invited to participate in future medical surveillance examinations. The potential number of workers who might be eligible for a screening exam is greater than the number of anticipated to be able to be screened with available resources over the next several years.

As noted immediately above, carcinogenic exposures will receive considerable attention, but others disease processes will also be considered. There will be an assessment made for appropriate beryllium screening, to supplement what is already a process that has been put in place at Pantex. However, it should be noted that beryllium screening has primarily been undertaken for current workers with few former workers already screened. Also, the use of solvents in some areas put individuals at risk for solvent related diseases, including neurologic problems, and an appropriate medical evaluation for these difficulties will be undertaken. Also, appropriate laboratory test that can be used for screening for potential occupational disease will be made part of the assessment process.

The final aspects of work from the assessment team will be to assign to all chemicals of major concern a hazard rating and to link this with work areas, and potentially to specific individuals, so that maximal use of resources for future examinations can be made.

V. Worker Assessment

A team of individuals, with considerable organizing experience through union work, and knowledgeable about sociologic issues with regard to workers, became involved with the overall needs assessment. The worker assessment activities were headed by Sheldon Samuels, a former member of the health and safety staff of the Industrial Union Department of the AFL-CIO, assisted by Dr. Howard Kelman, a sociologist knowledgeable about issues related to workers and their families, and additional staff. This group was organized by the Ramazzini Institute, of which Mr. Samuels is the Executive Vice President, and Dr. Frank, the P.I., was actively involved with this group. There was also the advantage of drawing upon previous activities of the ongoing project at Pantex, which has over the years involved Mr. Samuels and the Ramazzini Institute. As part of that prior activity, a local organization in the Amarillo area was set up to work with workers, their families, and with members of the business community. The Amarillo Health Consortium was an organization started several years ago which includes significant input from Pantex, both from organized labor and from management, as well as other community leaders. Since one of the aspects of a DOE former worker examination program is to assist former

workers who may have work related illnesses to enter into the DOE compensation program rather than going the more traditional route through the law courts, the experience and input from the Amarillo Health Consortium will be important and extremely useful in helping to organize these efforts in the future.

It is well recognized that former workers will need to be educated about programs available to them through the DOE and a major aspect of Phase II activities will be to assist workers with acquiring information, and accessing programs to which they may be entitled. The structure of the Amarillo Health Consortium will be extremely useful in meeting this goal. With offices already established in Amarillo, this organization will be a focal point for access to such information, and there is daily access available. Also, this office will assist with the identification of non-contract worker's that might qualify for testing under Phase II.

In addition, there are often significant familial concerns and issues regarding illnesses among former workers. The Amarillo Health Consortium will be a source of information and access to the P.I. who also serves as the medical director of the Consortium and will build upon the goodwill already engendered in the community through prior and current activities.

As part of the overall issue of worker assessment there have been some focus groups held with former workers, which have included current workers as well, to investigate the underlying perceived relationships with Pantex and the experience that the workers have had previously. In fairness, it should be noted that the current contractor has developed an excellent reputation for interaction with workers, outside scientific investigators and others, but that this was not always the case at Pantex. In the past there was a much more adversarial relationship, and for former workers this will be something that needs to be dealt with and understood in setting up a former worker's medical surveillance program and operating it against the previous experiential background that exists. Fortunately, both management personnel and union leadership at Pantex are perceived by current workers as being helpful, and insightful as to prior difficulties. There is also a desire not to repeat mistakes from the past. The Amarillo Health Consortium serves as a real example of current ongoing cooperative activities.

As part of this process, a questionnaire to assess workers attitudes, needs, and concerns about health issues and access for medical care has been developed and field tested. This will be further refined and used as part of the Phase II assessment of workers so that follow up activities that may be necessary after identification of potential health problems can be maximized. There is considerable experience on the worker assessment team from other DOE projects and this insight and experience has been, and will be, brought to bear on dealing with former Pantex workers and their needs. All of this will be done in conjunction with DOE policies regarding these types of activities, as well as the requirements of the various academic institutions that are participating. Security concerns, too, will be addressed. Historically, workers were loath to discuss almost anything about their work, even with family members.

While it is clear that for many of the former workers there are records still currently available at Pantex or retirees can be easily reached through regular dissemination of information to retirees, there will be the need to identify others, particularly those not directly employed by the contractor at Pantex. Through the offices of the Amarillo Health Consortium widespread local community advertising can be undertaken utilizing press, radio and other media, as well as through dissemination in the local business community trying to reach former workers who may have worked for organizations other than the Pantex contractor. Also, with the provision of names and lists, the usual databases such as social security, or drivers license records, can be accessed to identify former workers who should be invited for examination.

VI. Administrative Assessment

Overall, thought has been given to the adequacy of information currently available, how additional information can be made available, and how a medical examination program can be carried out in the future. Clearly, as noted above, the current management at Pantex has been most cooperative and helpful in the assessments that have already been taken, and will no doubt be helpful and supportive in the future when medical examinations might be undertaken. In every instance when materials have been requested, ways have been found to produce those materials, while still recognizing the natural and significant security needs of an active, currently operating facility.

In anticipation of Phase II exams, thought has been given and plans made for a program to undertake these exams. Through excellent past cooperation of the West Texas A & M University School of Nursing prior Pantex related examinations have been given at a site on the campus, and there has recently been developed a second clinical site in Amarillo itself where former Pantex workers can be seen. Based upon the experience we have had previously, and in discussion with other DOE sponsored program directors, it seems appropriate to use a combined approach for future examinations. There will be several possibilities for individuals to have access to these examinations.

First, there will be a system set up where on a regular basis, during most weeks of the year, examinations can be held at a West Texas A & M facility. This can be at either the main campus facility or the facility in downtown Amarillo. Secondly, it will be planned on a regular basis, several times during the course of the year, to have large scale sets of examinations whereby in the course of several days a large throughput of former worker examinees can be dealt with in a relatively brief period of time. Not everyone is able to come to such exams on a few fixed days each year, but many individuals, certainly with enough notice, can participate. A sufficiently large staff of medical and support personnel will be put together to carry out these examinations, combining staff from Drexel, UTHCT, and West Texas A & M. Thirdly, available though the University of Texas Health Center at Tyler is a mobile van fully equipped to undertake all the necessary examinations including X-rays, pulmonary function testing and other aspects of a planned medical evaluation and this van can be used both in support of these periodic large scale screenings in Amarillo, and for those former workers who are identified as living at sites distant from Amarillo. As appropriate, the van can be taken and set up for regional examinations which will increase the likelihood of individuals coming to the examinations, especially if they are no longer in the Amarillo area.

In addition to planning for potential medical examinations there has already been set up a toll free number for access to the principle investigator and his colleagues at Drexel University. The medical personnel will be available on an essentially constant basis and this has already proved quite feasible with regard to work already undertaken with former workers as well as current workers at Pantex. The actual operation of exams, oversight by medical personnel, the writing of reports, and dissemination of necessary information are logistical efforts that have already been worked out. It is anticipated that there should be no special difficulties in dealing with the former worker population, on a similar basis, with regard to the ultimate examination protocol that will be developed for the former worker examinations, given that a similar process has been successful over the past four years.

VII. Recommendation and Action Plan

Based upon the assessments that have been made, the hazardous materials utilized at the Pantex facility, the current knowledge of workers who appear to have suffered workplace related disease, especially cancer, as well as evidence that exists for beryllium related difficulties, it is appropriate to recommend the establishment of a Phase II process, based upon this needs

assessment. In fairness to the former workers, there appears to have been sufficient exposure to materials in the past which would speak to the issue of offering screening examinations, and for there to be, in appropriate cases, referrals into the DOE system for identified workplace related illnesses. Therefore, the setting up of Phase II examinations to be conducted over the next several years is recommended.

The action plan for this will be, if approved, to set up specific medical protocols and to finalize the procedures for former workers to be identified, contacted, invited in for examinations, and to have those examinations reviewed with responses going back to each individual worker. In addition, there will be available to all former workers local access to information relevant to DOE health programs, and to broader information processing for specialized referrals and community care that maybe necessary for specific health problems. It will not be the goal of the Phase II project to undertake any ongoing care of any individual, but to make appropriate referrals back to individual personal practitioners, to specialist, and into the DOE system, as appropriate.

The ultimate judgment as to which former workers should be given priority for being invited into such an examination program will be finalized through the use of the exposure matrices developed by the exposure assessment group, utilizing the records available for former workers kept by the company. The setting up of databases in a manner that will allow for merging by various parameters will allow this to be accomplished.

In conclusion, it is anticipated that the former Pantex worker medical surveillance program will operate in a manner similar to the other outstanding programs that have been sponsored by DOE to meet the needs of former workers at other DOE facilities.

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Arthur L. Frank, M.D., Ph.D.
Professor of Public Health
Chair, Department of Environmental and
Occupational Health
Drexel University School of Public Health